Remarks

Claims 1, 3, 5, 6, 14, 15, 17, 19, 20, 27-31, 33, 35, 36, 43-46, and 57-65 are pending in the subject application and are currently before the Examiner. Applicants gratefully acknowledge the Examiner's withdrawal of the rejection under 35 USC §102(e). Favorable consideration of the pending claims is respectfully requested.

Claims 1, 3, 5, 6, 14, 15, 17, 19, 20, 27-31, 33, 35, 36, and 43-46 remain rejected under 35 USC §103(a) as obvious over Meyerowitz *et al.* (U.S. Patent No. 6,294,716) in view of Hudspeth *et al.* (1996). The Meyerowitz *et al.* patent is cited as teaching a polynucleotide that encodes an etr1 ethylene response polypeptide from *Arabidopsis*. The Meyerowitz *et al.* patent is also cited as teaching methods of modulating the response of plant tissue to ethylene in plants transformed with the polynucleotide. The Hudspeth *et al.* reference is cited as teaching isolated promoter sequences from cotton chitinase genes that comprise a functional fragment of the polynucleotide sequence shown in SEQ ID NO: 8. The Examiner asserts that a person of ordinary skill in the art would have been motivated to isolate the full length of the promoter disclosed in the Hudspeth *et al.* reference. Applicants respectfully traverse this ground of rejection.

Applicants respectfully maintain that the cited references do not teach or suggest Applicants' claimed invention. Under this rejection, the Examiner asserts that the Meyerowitz *et al.* patent teaches the modified etr1 protein of Applicants' claimed invention. The Examiner refers to claim 25 of the Meyerowitz *et al.* patent as evidence thereof. Applicants respectfully assert that the Meyerowitz *et al.* patent does not teach or suggest SEQ ID NOs: 1-4. Claim 25 of the Meyerowitz *et al.* patent is directed to a plant having a modified etr1 sequence wherein one of the listed amino acid substitutions is made (claim 25 recites ". . . wherein said modified ETR protein comprises the substitution of **a** selected amino acid residue . . ."). There is no teaching or suggestion in the Meyerowitz *et al.* patent of a modified etr1 protein having all of the amino acid changes that are present in SEQ ID NOs: 1-4 of Applicants' claims. Accordingly, Applicants maintain that the Meyerowitz *et al.* patent does not teach or suggest a polynucleotide encoding a mutant etr1 of SEQ ID NOs: 1-4, nor does it teach or suggest the nucleotide sequence of SEQ ID NO: 5 that encodes SEQ ID NO: 1.

The Examiner also asserts under this rejection that a person of ordinary skill in the art would

have been motivated to isolate the full length promoter sequence from the teachings of the Hudspeth *et al.* reference and that the artisan would have been motivated to combine it with a polynucleotide encoding an etr1 polypeptide as taught by the Meyerowitz *et al.* patent. Under this rejection, the Examiner asserts that a person of ordinary skill in the art would find motivation in view of the teachings of the Meyerowitz *et al.* patent and Hudspeth *et al.* reference that "promoters induced by ethylene are useful in the art of genetic engineering of plants," that "abscission in plants is controlled by ethylene," and that "the cotton chitinase gene is induced by ethylene." In regard to combining the teachings of the Meyerowitz *et al.* and Hudspeth *et al.* references, Applicants respectfully assert that at the time of the claimed invention an ordinarily skilled artisan would not have had any motivation to combine the teachings of the cited references. Applicants did not select a chitinase promoter for use in the claimed invention in view of its ethylene inducibility; ethylene-inducibility is irrelevant to the claimed invention. Rather, the subject chitinase promoter was selected because it showed strong expression in the specific tissue of interest, *i.e.,* abscission zones. Expression of chitinase in abscission zones of plants is not taught or suggested in the Hudspeth *et al.* reference. Applicants sought tissue specificity because of observations that expression of etr1-1 in non-target tissues can have important negative agronomic consequences. Hudspeth *et al.* do not teach or suggest the tissue specificity and indeed lead the ordinarily skilled artisan to believe that that there is not any particular tissue specificity. Applicants' data run counter to what Hudspeth *et al.* teach since Applicants observed a great specificity in expression, particularly as it relates to abscission zones. Applicants respectfully assert that a person of ordinary skill in the art, if looking to the teachings of the Hudspeth *et al.* reference, would have been directed away from using a chitinase promoter . Thus, Applicants respectfully assert that the cited references "teach away" from Applicants' claimed invention. An invention that contradicts the teachings and express expectations of the prior art has long been accepted as indicia of non-obviousness of an invention. The United States Supreme Court affirmed this principle when it found an invention patentable where the inventor went **against** the accepted teachings, which when taken together, would deter investigation into such a combination. *United States v. Adams*, 383 U.S. 39, 52 (1966).

Further, the authors of the Hudspeth *et al.* reference used ethaphon, not ethylene, in their studies. Although ethaphon breaks down to ethylene, it also releases phosphonic acid. It is known to

those of ordinary skill in the art that ethaphon results can be misleading because of the acid-associated toxicity and, therefore, it is not generally used as a substitute for ethylene because of frequent false positives.

In regard to isolating the full length promoter sequence based on the fragment disclosed in the Hudspeth *et al.* reference, Applicants respectfully assert that even if there was motivation to isolate the full-length promoter sequence (Applicants maintain that there was no such motivation), it would only have been "obvious to try" to isolate the full length sequence, but there would not have been the required reasonable expectation of success in doing so. "Obvious to try" is not the appropriate standard for determining obviousness. Moreover, even if a full-length sequence of the promoter was isolated, there is no certainty that the promoter of Hudspeth *et al.* would have exactly the same nucleotide sequence as SEQ ID NO: 8 recited in Applicants' claims. The Examiner assumes that a full length promoter sequence isolated using the teachings of the Hudspeth *et al.* reference would have the exact nucleotide sequence as SEQ ID NO: 8. However, the Patent Office has long maintained that a polynucleotide is like any other chemical moiety and that its chemical structure cannot be known until the polynucleotide is actually isolated and sequenced. Thus, Applicants respectfully assert that the Hudspeth *et al.* reference does not teach or suggest the promoter sequence of SEQ ID NO: 8.

In view of the above remarks, reconsideration and withdrawal of the rejection under 35 USC §103(a) is respectfully requested.

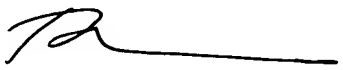
It should be understood that the amendments presented herein have been made solely to expedite prosecution of the subject application to completion and should not be construed as an indication of Applicants' agreement with or acquiescence in the Examiner's position.

In view of the foregoing remarks and amendments to the claims, Applicants believe that the currently pending claims are in condition for allowance, and such action is respectfully requested.

The Commissioner is hereby authorized to charge any fees under 37 CFR §§1.16 or 1.17 as required by this paper to Deposit Account No. 19-0065.

Applicants invite the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephonic interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



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